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MODIFIED PTO/SB/64 (11-03)

PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 C.F.R. § 1.137(b)

Docket No. Q59083

#11

A

OCT 27 2004 PATENT & TRADEMARK OFFICE

First named inventor: Andrey Leonidovich ROG

Application Number: 09/554,392

Filed: June 6, 2000

Title: METHOD FOR INCREASING INTERFERENCE IMMUNITY WHEN RECEIVING SIGNALS FROM SATELLITE NAVIGATIONAL SYSTEMS AND DEVICE FOR REALIZING THE SAME

Group Art Unit: 2634

Examiner: ZHENG, Eva Y.

Attention: Office of Petitions
MAIL STOP PETITION
Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450
FAX: (703) 872-9306

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NOV 02 2004
OFFICE OF PETITIONS

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION
NOTE: A grantable petition requires the following items:

1. Petition fee
   - ☐ Small entity - fee $_____ (37 C.F.R. § 1.17(m)). Applicant claims small entity status. See 37 C.F.R. § 1.27.
   - ☑ Other than small entity - fee $1,370.00 (37 C.F.R. § 1.17(m)).

2. Reply and/or fee
   A. The reply and/or fee to the above-noted Office action in the form of Amendment under 37 C.F.R. § 1.111 (identify type of reply):
      - ☐ has been filed previously on _____.
      - ☑ is enclosed herewith.
   B. The issue fee of $_____.
      - ☐ has been paid previously on _____.
      - ☐ is enclosed herewith.

3. Terminal disclaimer with disclaimer fee
   - ☑ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.
   - ☐ A terminal disclaimer (and disclaimer fee (37 C.F.R. § 1.20(d)) of $_____ for a small entity or $_____ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. STATEMENT: [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 C.F.R. § 1.137(b) was unintentional (MPEP § 711.03(c), subsections (III)(C) and (D))].
   - ☑ The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 C.F.R. § 1.137(b) was unintentional.
   - ☐ See Attached Statement.

October 27, 2004
Date

Signature

(202)293-7060
Telephone

Lenny R. Jiang
Typed or printed name

52,432
Reg. No.

SUGHRUE MION, PLLC
WASHINGTON OFFICE
23373
CUSTOMER NUMBER

10/28/2004 SDENBOB1 00000037 09554392
01 FC:1453 1370.00 OP

Enclosures:
- ☑ Fee(s) Payment
- ☑ Reply
- ☐ Terminal Disclaimer
- ☐ Additional sheets containing statements establishing unintentional delay
- ☐ _____

MODIFIED PTO/SB/64 (11-03)

PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 C.F.R. § 1.137(b)	Docket No.	Q59083

First named inventor: Andrey Leonidovich ROG

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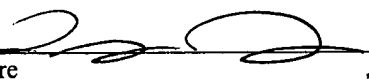
      - ☐ has been filed previously on _____.
      - ☑ is enclosed herewith.
   B. The issue fee of $_____.
      - ☐ has been paid previously on _____.
      - ☐ is enclosed herewith.

3. Terminal disclaimer with disclaimer fee
   - ☑ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.
   - ☐ A terminal disclaimer (and disclaimer fee (37 C.F.R. § 1.20(d)) of $_____ for a small entity or $_____ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. STATEMENT: [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 C.F.R. § 1.137(b) was unintentional (MPEP § 711.03(c), subsections (III)(C) and (D))].
   - ☑ The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 C.F.R. § 1.137(b) was unintentional.
   - ☐ See Attached Statement.

October 27, 2004
Date


Signature

(202)293-7060
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Lenny R. Jiang
Typed or printed name

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Reg. No.

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23373
CUSTOMER NUMBER

Enclosures:
- ☑ Fee(s) Payment
- ☑ Reply
- ☐ Terminal Disclaimer
- ☐ Additional sheets containing statements establishing unintentional delay
- ☐ _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/554,392	06/06/2000	Andrey Leonidovich Rog	Q59083	2266

7590 09/29/2004

EXAMINER
ZHENG, EVA Y

ART UNIT	PAPER NUMBER
2634	

Sughrue Mion Zinn
Macpeak & Seas
Suite 800
2100 Pennsylvania Avenue NW
Washington, DC 20037-3213

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Notice of Abandonment

Application No.	Applicant(s)	
09/554,392	ROG ET AL.	
Examiner	**Art Unit**	
Eva Yi Zheng	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on *10 November 2003*.
   (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
   (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
   (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
   (d) ☒ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $_____ is insufficient. A balance of $_____ is due.
   The issue fee required by 37 CFR 1.18 is $_____. The publication fee, if required by 37 CFR 1.18(d), is $_____.
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.

6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☐ The reason(s) below:

SHUWANG LIU
PRIMARY EXAMINER

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

#12

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Andrey Leonidovich ROG, et al.

Appln. No. 09/554,392

Confirmation No. 2266

Filed: June 6, 2000

Docket No Q59083

Group Art Unit: 2634

Examiner: ZHENG, Eva Y.

For: METHOD OF INCREASING NOISE IMMUNITY DURING RECEPTION OF SIGNALS FROM SATELLITE NAVIGATIONAL SYSTEMS

AMENDMENT UNDER 37 C.F.R. § 1.111

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated November 10, 2003, please amend the above-identified application as follows on the accompanying pages.

TABLE OF CONTENTS

AMENDMENTS TO THE SPECIFICATION

Please replace the present title with the following rewritten title:

--METHOD OF INCREASING NOISE IMMUNITY DURING RECEPTION OF SIGNALS FROM SATELLITE NAVIGATIONAL SYSTEMS--

Please delete the present Abstract of the Disclosure and replace it with the following new Abstract of the Disclosure.

~~The problem to be solved by the invention is to reduce the errors~~ Errors are reduced when tracing ~~the~~ PRNS code delay, especially in ~~the~~ receivers operating on signals with rather ~~a~~ low code frequency (C/A code) under ~~the~~ multibeam effect without deterioration or with minimum deterioration of the signal-to-noise ratio. ~~There are proposed a~~ A method of increasing ~~the~~ noise immunity during reception of ~~the~~ signals ~~of~~ from satellite navigational systems and a device for realizing the same ~~comprising~~ includes radio modules ~~well known as components of such receivers, amplifying the input signal and converting the input carrier into an intermediate frequency signal~~, an analog-to-digital converter~~, converting the analogue signal into a digital one~~, a digital correlation device ~~consisting of a plurality of single-type channels, each of which tracing one pseudonoise signal (PNS), and each of them includes a gain-controlled carrier frequency generator and a code frequency generator for tracing the pseudonoise carrier and the code delay~~, ~~as well~~ and ~~as~~ digital correlators ~~whose output information is used for closing the code delay tracing cycle,. said units generating a~~ A discrimination signal is generated with a variable delay of the signal copy with respect to the exact copy. ~~The given approach allows one to get a number of advantages compared to the known technical solutions.~~ The use of the correcting sequence of gating digital signals makes it possible to eliminate the multipath effect at a delay of the reflected signal larger than 1.5d and reduces its negative effect starting from a delay value greater than d/2. In this case, the energy losses compared with a pure mode of the narrow correlator are increased only by 1.76 dB. ~~(Fig. 1/6).~~

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A method of increasing noise immunity during reception of signals from satellites of navigational systems comprising:

decoding signals having a carrier coded with a pseudo-random sequence;

generating a local difference copy of an input signal, wherein a delay d between an early copy and a late copy of the input signal makes up a fractional part of a character of the pseudo-random sequence;

generating an exact copy of the input signal;

generating a sequence of gating digital signals;

setting a length of the gating digital signals equal to the delay d;

selecting a character polarity of the gating digital signals to coincide with a polarity of a previous character of the exact copy; and

delaying a beginning of the gating digital signals relative to an end of the character of the exact copy of the pseudo-random sequence by a value equal to d/2.

2. (previously presented): A method as claimed in claim 10, wherein the input signal correlation is performed separately for the exact copy of the input signal, for the difference copy of the input signal and for the sequence of the gating digital signals; the correlation results are

stored in corresponding quadrature accumulators; the discriminator signal is formed as $I_{E\_L}I_P + Q_{E\text{-}L}Q_P$, where $I_{E\text{-}L}$, $Q_{E\text{-}L}$ are in-phase and quadrature components of the results of correlation of the input signal with the difference copy signal, I_p, Q_p are in-phase and quadrature components of the results of correlation of the input signal with the exact copy signal, the method further comprising:

comparing value of the accumulators containing the results of correlation of the input signal, with the sequence of gating digital signals $I_k^2 + Q_k^2$, with a threshold value of detection of a multipath effect; and

compensating the multipath effect in excess of the threshold value by adding output value of the accumulators of gating digital signals to output value of the corresponding quadrature accumulators of the difference copy to produce a discriminator signal in the form:

$$I_{E\text{-}L}I_P + Q_{E\text{-}L}Q_P + I_kI_P + Q_kQ_P.$$

3. (previously presented): A method of increasing noise immunity during reception of signals from satellites of navigational systems comprising:

decoding signals having a carrier coded with a pseudo-random sequence;

generating an early copy of an input signal;

generating a late copy of an input signal, wherein a delay d between the early and late copy of the input signal makes up a fractional part of a character of the pseudo-random sequence;

generating a sequence of gating digital signals;

setting a length of the gating digital signals equal to the delay d;

selecting a character polarity of the gating digital signals to coincide with a polarity of a previous character of an exact copy of the input signal; and

delaying a beginning of the gating digital signal relative to an end of the character of the exact copy of the pseudo-random sequence by a value equal to d/2.

4. (previously presented): A method as claimed in claim 11, further comprising, when tracing the delay of the code:

determining a value of the discriminator signal as: $I_E^2 + Q_E^2 - I_L^2 - Q_L^2$;

comparing a value of the accumulators storing the correlation results of the input signal with a sequence of gating digital signals $I_K^2 + Q_K^2$ with a threshold value of detection of a multipath effect; and

compensating the multipath effect exceeding the threshold value by adding the value from the output of the accumulators to the calculated value of the discriminator to equal $I_E^2 + Q_E^2 - L_E^2 - I_L^2 - Q_L^2 + I_K^2 + Q_K^2$.

5. (currently amended): A device for reception of signals of satellite navigational systems transmitting a plurality of signals with a carrier, coded by pseudo-random sequences, comprising:

a radio module receiving the input signal, converting the input signal into an intermediate-frequency signal, including a plurality of signals with an intermediate frequency carrier, coded by a pseudo-random sequence;

an analog-to-digital converter, converting the intermediate-frequency signal into a digital signal;

a ~~multichannel~~ digital correlation device including a digital correlator whose each channel decodes one of the plurality of signals coded by pseudo-random sequence and converted into the digital signal;

a first generator which produces an exact copy of the signal coded by a pseudo-random sequence;

a second generator which produces a difference copy of the signal coded by the pseudo-random sequence, wherein a delay d between an early copy and a late copy of the signal makes up a fraction of a character of the pseudo-random sequence, and which generates a sequence of gating digital signals, wherein a length of the gating digital signals is equal to the delay d, a polarity of the character of the gating digital signals coincides with a polarity of the previous character of the exact copy of the signal coded by the pseudo-random sequence and a beginning of the gating digital signals is delayed relative to an end of the character of the exact copy of the pseudo-random sequence by a value equal to d/2.

6. (currently amended): A device for reception of signals of satellite navigational systems transmitting a plurality of signals with a carrier, coded by pseudo-random sequences, comprising:

a radio module receiving the input signal, converting the input signal into an intermediate-frequency signal, including a plurality of signals with an intermediate frequency carrier, coded by a pseudo-random sequence;

an analog-to-digital converter, converting the intermediate-frequency signal into a digital signal;

a ~~multichannel~~ digital correlation device including a digital correlator whose each channel decodes one of the plurality of signals coded by pseudo-random sequence and converted into the digital signal,

wherein each channel of the multichannel digital correlator comprises:

a first generator of an exact copy of the signal coded by a pseudo-random sequence;

a second generator of a difference copy of the signal coded by the pseudo-random sequence, wherein a delay d between an early copy and a late copy makes up a fraction of a character of the pseudo-random sequence;

a third generator producing a sequence of gating digital signals, wherein a length of the gating digital signals is equal to the delay d, a polarity of a character of the gating digital signals coincides with a polarity of previous character of the exact copy of the signal coded by the pseudo-random sequence and a beginning of the gating digital signals is delayed relative to an end of the character of the exact copy of the signal coded by the pseudo-random sequence by a value equal to d/2.

7. (previously presented): The device as claimed in claim 6, further comprising:

a first mixer performing multiplication of quadrature counts of the input signal by counts of the exact copy of the signal coded by the pseudo-random sequence;

a second mixer performing multiplication of the quadrature counts of the input signal by counts of the difference copy;

a third mixer performing multiplication of the quadrature counts of the input signal by counts of the sequence of gating digital signals;

quadrature accumulators accumulating results of the multiplication performed by the first, second and third mixers; and

a device adjusting the delay of the exact copy of the signal coded by the pseudo-random sequence depending on an error signal from an output of a discriminator calculated on a basis of counts of the accumulators as $I_{E-L}I_P + Q_{E-L}Q_P + I_K I_P + Q_K Q_p$ provided that a threshold of detection of a multipath signal is exceeded, where I_p, Q_p are in-phrase and quadrature components of results of correlation of the input signal with the exact copy signal; I_{E-L}, Q_{E-L} are in-phrase and quadrature components of results of correlation of the input signal with the difference copy signal; and I_k, Q_k are in-phrase and quadrature components of results of correlation of the sequence of gating digital signals.

8. (currently amended): A device for reception of signals of satellite navigational systems transmitting a plurality of signals with a carrier, coded by pseudo-random sequences, comprising:

a radio module receiving the input signal, converting the input signal into an intermediate-frequency signal, including a plurality of signals with an intermediate frequency carrier, coded by a pseudo-random sequence;

an analog-to-digital converter, converting the intermediate-frequency signal into a digital signal;

a ~~multichannel~~ digital correlation device including a digital correlator whose each channel decodes one of the plurality of signals coded by pseudo-random sequence and converted into the digital signal,

wherein each channel of the multichannel digital correlator comprises:

a first generator producing an early copy of a signal coded by a pseudo-random sequence;

a second generator producing a late copy of the signal coded by the pseudorandom sequence, wherein a delay d between the early and late copies makes up a fraction of a character of the pseudo-random sequence;

a third generator producing a sequence of gating digital signals, wherein a length of the gating digital signals is equal to the delay d, a polarity of a character of the gating digital signals coincides with a polarity of previous character of an exact copy of the signal coded by the pseudo-random sequence and a beginning of the gating digital signals is delayed relative to an end of the character of the exact copy of the signal coded by the pseudo-random sequence by a value equal to d/2.

9. (previously presented): The device as claimed in claim 12, wherein

a value of the signal of the discriminator for the device adjusting the delay is determined as $I_E^2 + Q_E^2 - I_L^2 - Q_L^2$, and

the value of the accumulators, which store results of correlation of the input signal with the sequence of gating digital signals $I_k^2 + Q_K^2$, is compared with a threshold value and, if a detected multipath effect exceeds the threshold value, output values of the accumulators are

added to the determined value of the signal of the discriminator to equal $I_E^2 + Q_E^2 - I_L^2 - Q_L^2 + I_K^2 + Q_K^2$.

10. (currently amended): The method as claimed in claim 1, further comprising:

affecting correlation of the input signal, the input signal comprising a direct signal and a plurality of delayed multipath signals, with the exact copy and with a signal representing a mixture of the difference copy and the sequence of the gating digital signals;

storing results of the correlation in accumulators; and

forming a discriminator signal, for tracing a delay of the code, in a form of

$I_{E-L+K}I_P + Q_{E-L+K}Q_P$, I_{E-L+K}, where Q_{E-L+K} are in-phase and quadrature components of the results of correlation of the input signal with the signal representing the mixture of the difference copy and the sequence of the gating digital signals, and I_p, Q_p are in-phase and quadrature components of the results of correlation of the input signal with the exact copy of the ~~in-put~~ input signal,

thereby performing the adjustment of the exact and difference copy of the input signal based on the discriminator signal so that an error signal is influenced only by the input signal of direct visibility and is not influenced by multipath signals.

11. (previously presented): The method as claimed in claim 3, further comprising:

affecting correlation of the input signal, the input signal comprising, a direct signal and a plurality of delayed multipath signals, with the early copy;

affecting correlation of the input signal with the late copy;

affecting correlation of the input signal with a signal representing a sequence of gating digital signals;

storing the correlation results in accumulators; and

forming a discriminator signal, for tracing a delay of the code, in a form of $I_E^2 + Q_E^2 - I_L^2 - Q_L^2 + I_K^2 + Q_k^2$, where I_E, Q_E are in-phase and quadrature components of the results of correlation of the early copy of the input signal, I_L, Q_L are in-phase and quadrature components of the results of correlation of the late copy of the input signal, and I_K, Q_K are in-phase and quadrature components of the results of correlation of the sequence of the gating digital signals.

12. (previously presented): The device as claimed in claim 5, further comprising:

a first mixer performing multiplication of quadrature counts of the input signal by counts of the exact copy of the signal coded by pseudo-random sequence;

a second mixer performing multiplication of the quadrature counts of the input signal by counts of a signal representing a mixture of the difference copy and the sequence of gating digital signals;

quadrature accumulators accumulating results of multiplication performed by the first and second mixers;

a device adjusting the delay of the exact copy of the signal coded by the pseudo-random sequence depending on an error signal from a discriminator output calculated on the basis of counts of the accumulators as: $I_{E\text{-}L+K}I_P + Q_{E\text{-}L+K}Q_P$, where $I_{E\text{-}L+K}$, $Q_{E\text{-}L+K}$ are in-phase and

quadrature components of results of correlation of the input signal with the signal representing a mixture of the difference copy and the sequence of gating digital signals, I_p, Q_p are the in-phase and quadrature components of results of correlation of the input signal with the exact copy of the signal coded by pseudo-random sequence.

13. (previously presented): The device as claimed in claim 6, further comprising:

a first mixer performing multiplication of quadrature counts of the input signal by counts of the exact copy of the signal coded by pseudo-random sequence;

a second mixer performing multiplication of the quadrature counts of the input signal by counts of the difference copy;

a third mixer performing multiplication of the quadrature counts of the input signal by counts of the sequence of gating digital signals;

quadrature accumulators accumulating results of the multiplication performed by the first, second and third mixers; and

a device adjusting the delay of the exact copy of the signal coded by the pseudo-random sequence depending on an error signal from a discriminator output calculated on a basis of counts of the accumulators as: $I_{E\text{-}L}I_P + Q_{E\text{-}L}Q_P$, where I_{E_L}, $Q_{E\text{-}L}$ are in-phase and quadrature components of results of correlation of the input signal with the difference copy, $I_K^2 + Q_K^2$ does not exceed a threshold of detection of a multipath signal, and I_K, Q_K are in-phase and quadrature components of results of correlation of the sequence of gating digital signals.

14. (previously presented): The device as claimed in claim 8 further comprising:

a first mixer performing multiplication of quadrature counts of the input signal by counts of the early copy;

a second mixer performing multiplication of the quadrature counts of the input signal by counts of the late copy;

a third mixer performing multiplication of the quadrature counts of the input signal by counts of the sequence of the gating digital signals;

quadrature accumulators accumulating results of the multiplication performed by the first, second and third mixers; and a device adjusting the delay of the exact copy of the signal

coded by the pseudo-random sequence depending on an error signal from a discriminator output calculated on a basis of counts of the accumulators as: $I_E^2 + Q_E^2 - I_L^2 - Q_L^2 + I_K^2 + Q_K^2$, where I_E,Q_E are in-phase and quadrature components of results of correlation of the early copy,

I_p, Q_p are in-phase and quadrature components of results of correlation of the late copy, and I_K, Q_K are the in-phase and quadrature components of results of correlation of the sequence of gating digital signals.

AMENDMENTS TO THE DRAWINGS

Figs. 1 and 2 have been amended to include labels for component blocks. Fig. 3 has been amended to correct typographical mistakes in the labels.

Attachment: Drawing Replacement Sheets
(Figs. 1-3)

REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 5, 6, 8 and 10 have been editorially amended to improve clarity and correct a typographical mistakes. Claims 1-14 are pending in the application. The rejections are respectfully submitted to be obviated in view of the remarks presented herein.

Objection to the Drawings

The drawings have been objected to under 37 CFR 1.83(a) because they allegedly fail to show Figs. 1 and 2 as described in the specification, and Fig. 3 is allegedly misnumbered. Figs. 1 and 2 have been amended to include labels for component blocks, and Fig. 3 has been amended to correct the typographical mistakes in the labels. Accordingly, Applicants respectfully request the Examiner to withdraw the outstanding objections to the drawings.

Objections to the Specification

The specification has been objected to because of informalities. Additionally, the title of the invention is allegedly not descriptive. The abstract has also been objected to for its length and legal phraseology. The title of the invention and abstract have been amended in order to improve clarity. The objections to the specification as described in paragraphs 7-9 of the Office Action have already been corrected in the substitute specification filed on November 15, 2000. Regarding the relationship between the digital correlation device and analog-digital converter, Applicants have described in the substitute specification on page 6, lines 1-8, that the digital

correlation device and analog-digital converter are related such that the analog-digital converter converts an intermediate frequency signal encoded by a pseudonoise sequence into a digital signal, and a digital correlation device comprises a plurality of channels each decoding one of a plurality of signals encoded by the pseudonoise sequence. The digital correlation device decodes the signal converted by the analog-digital converter. Accordingly, Applicants respectfully request the Examiner to withdraw the outstanding objections to the specification.

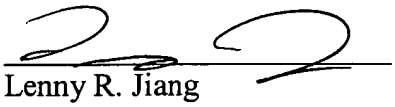
Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 5, 6 and 8 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being incomplete for omitting essential structural cooperative relationships of elements. Claims 5, 6 and 8 have subsequently been amended. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, are respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: October 27, 2004

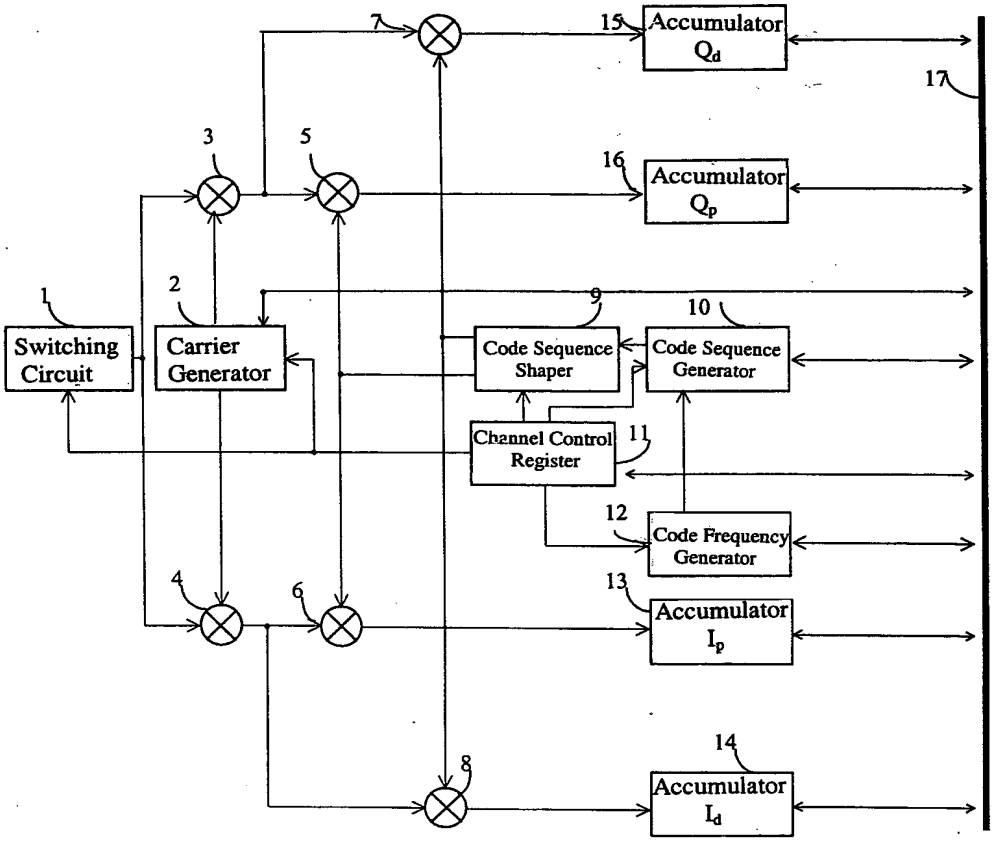

Fig. 1

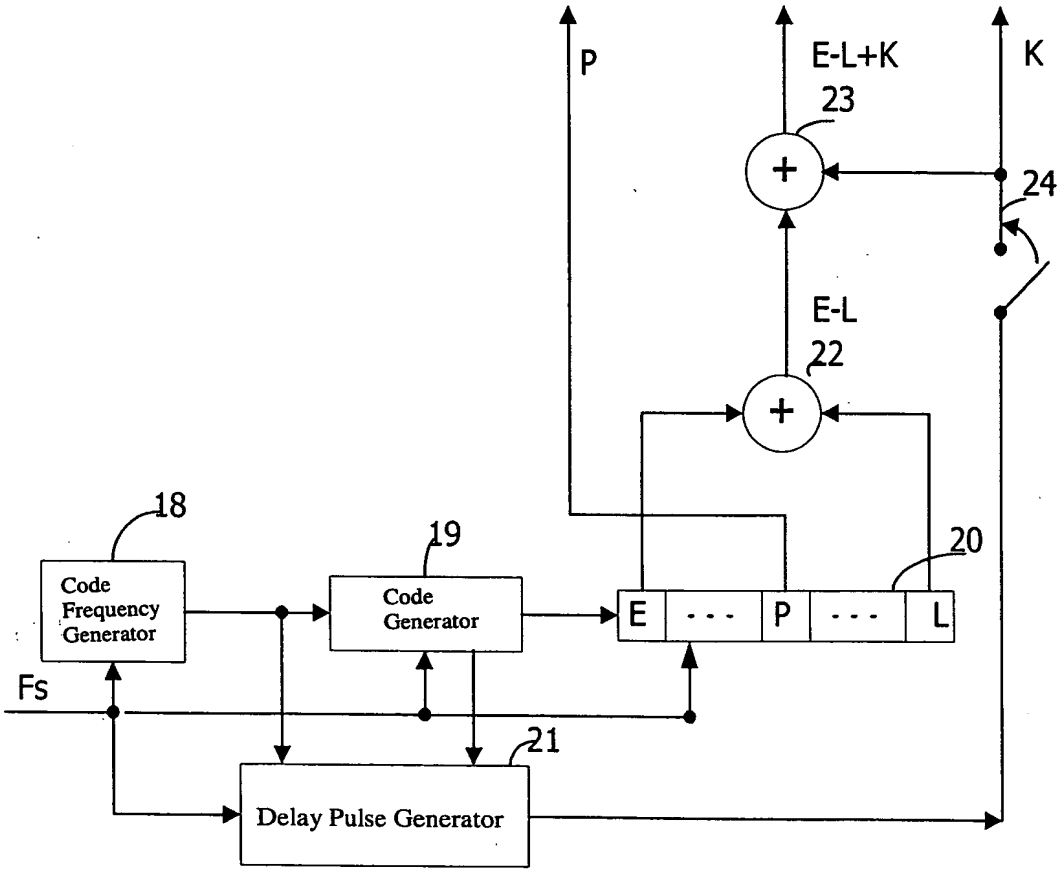

Fig. 2

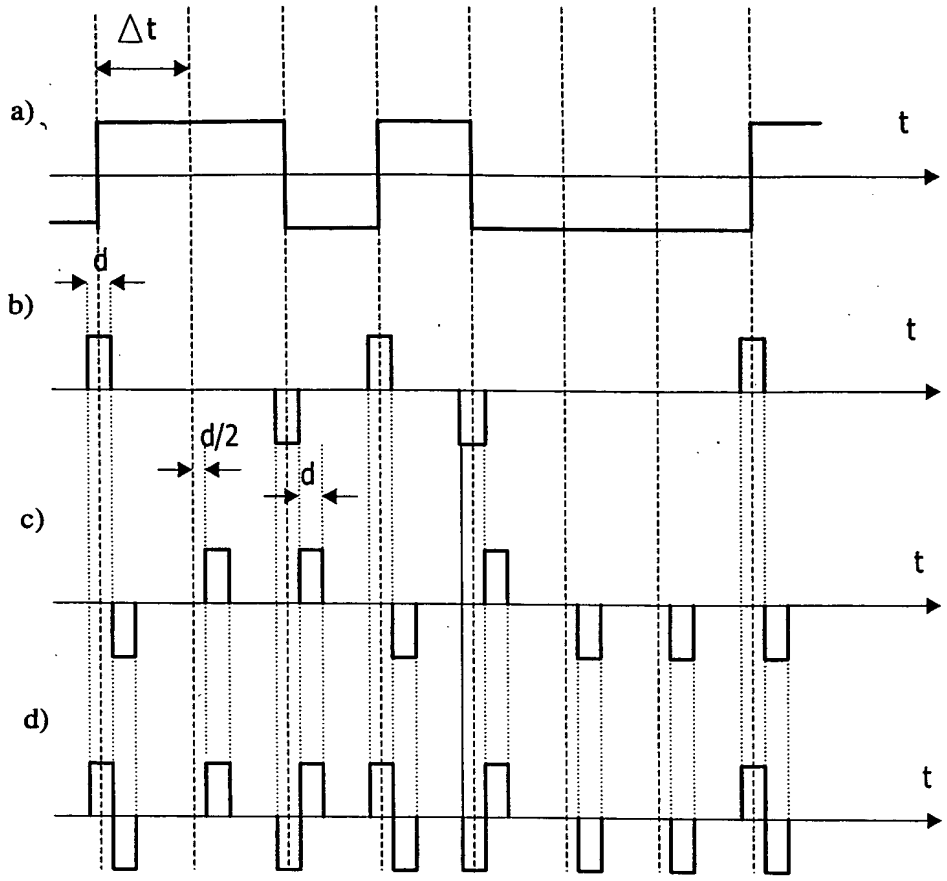

Fig. 3